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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,099	11/20/2003	Michael Carson	60680-1818	1098

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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,099	Applicant(s) CARSON	
	Examiner Jeffrey Sharp	Art Unit 3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-12,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

[1] This action is responsive to Applicant's amendment filed on 18 September 2006 with regard to the Non-Final Official Office action mailed on 17 May 2006.

Status of Claims

[2] Claims 1-5, 8-12, 14, and 15 are pending.

Claim Rejections - 35 USC § 102

[3] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[4] Claims 1-5, 11, and 15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Gosling US-2,340,466.

In short, Gosling teaches a "generally" rigid piston ring and assembly (refer to figure below) comprising:

a piston ring having a generally annular body having a tapered outer peripheral face defining a gap and an edge, a generally hook shaped groove on a lower surface, and a radially outwardly extending projection forming a ledge and being provided at a top surface of said piston ring, wherein said groove also forms said edge;

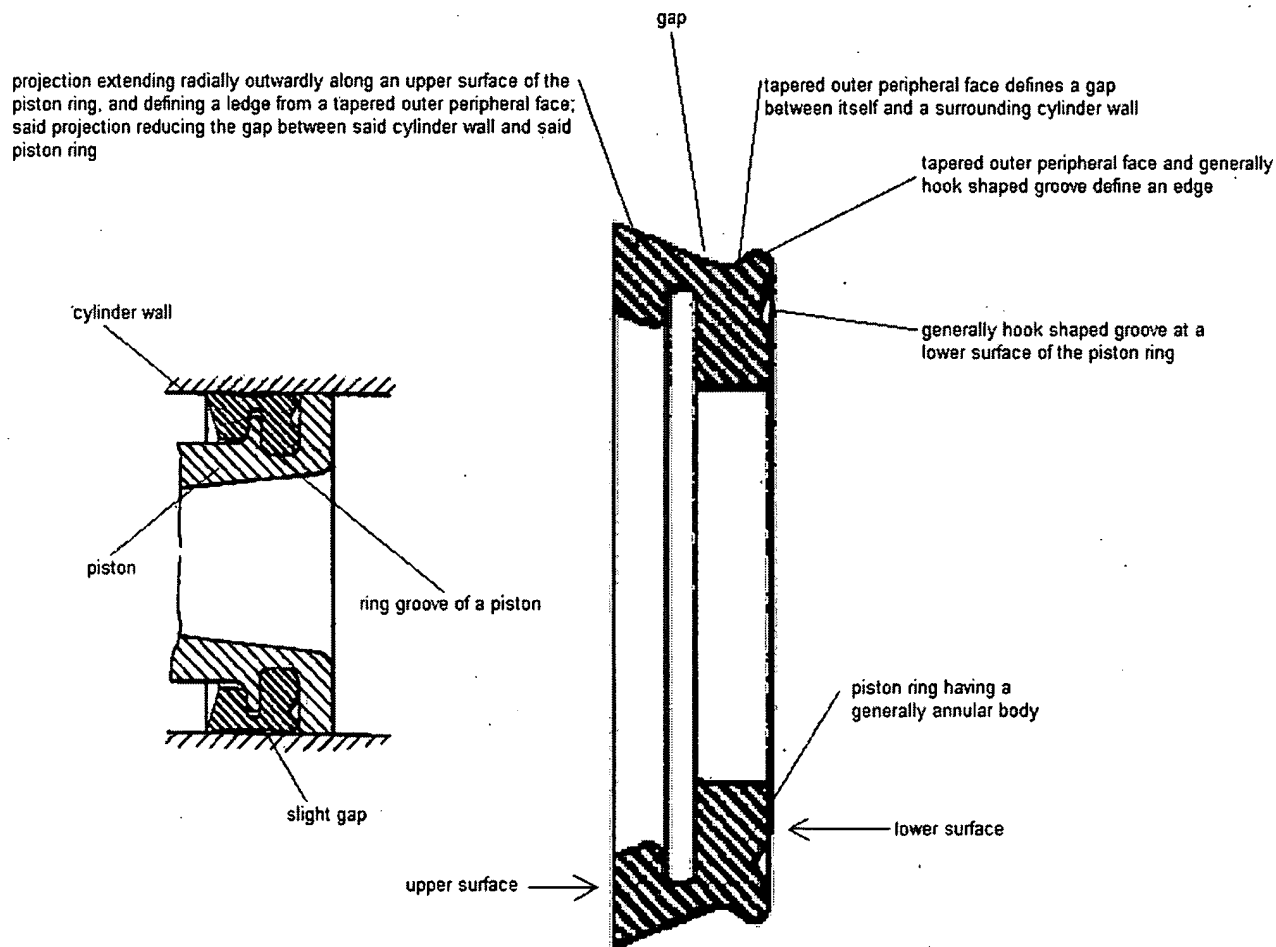
a piston having a ring groove adapted to receive said piston ring; and

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a cylinder wall that receives said piston with said piston ring substantially being positioned between the two.

The piston ring taught by Gosling is "generally rigid"...or at least rigid enough to serve as a seal. The piston ring taught by Gosling is capable of "positive twisting" (i.e., twisting).

Applicant is reminded that claims in a pending application should be given their broadest reasonable interpretation. *In re Pearson*, 181 USPQ 641 (CCPA 1974).



Gosling US-2,340,466

Claim Rejections - 35 USC § 103

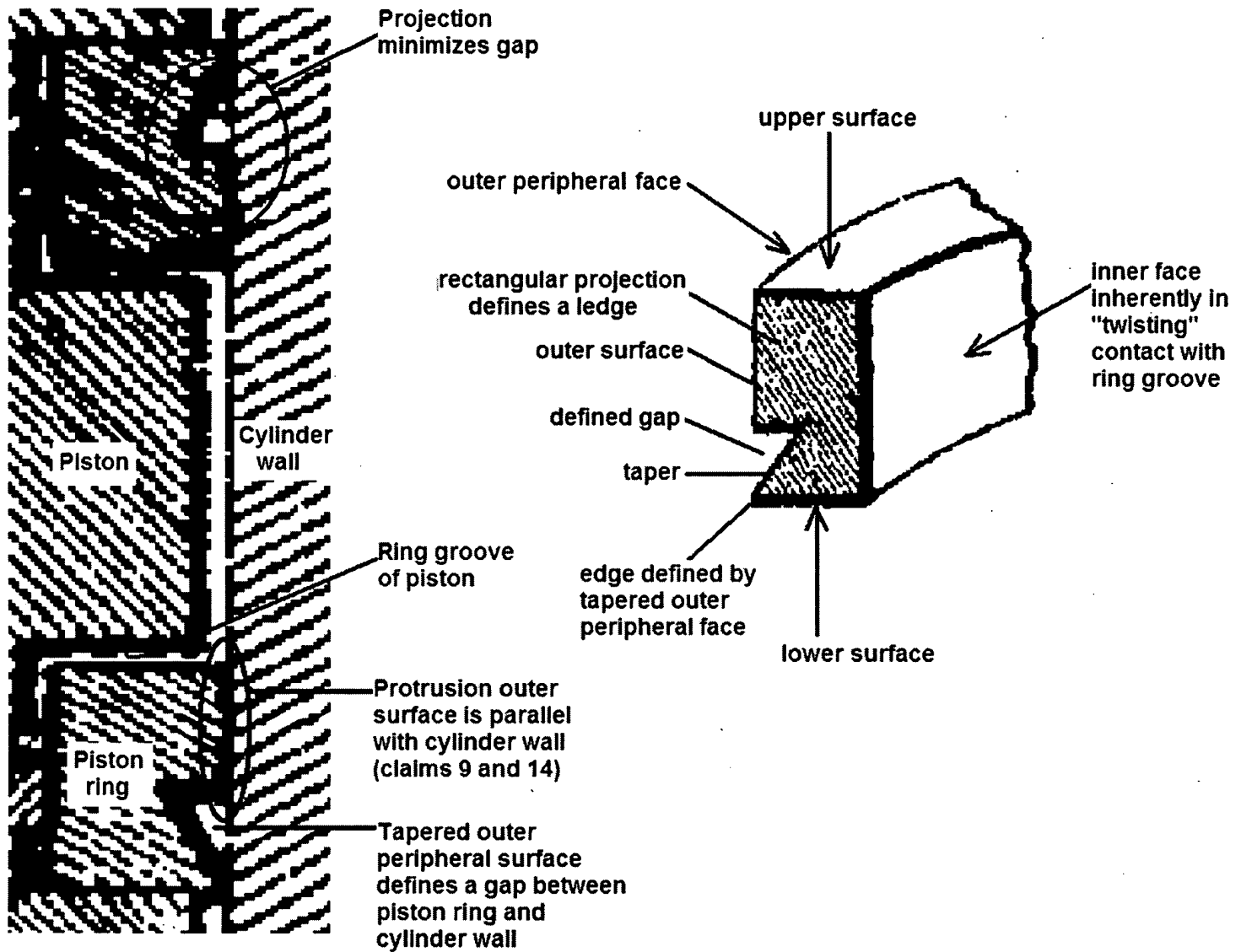
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[5] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[6] Claims 1-5, 8-12, 14, and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Norwood US-RE14,969 in view of Applicant's own admission of prior art.

In short, Norwood teaches a "generally" rigid piston ring capable of "positive twist", said ring having each and every structural limitation in claims 1-5, 8-12, 14, and 15, including an intersection of the lower surface and the outer peripheral face defines an edge.



Norwood US-RE14,969

However, Norwood fails to disclose *"a generally hook-shaped groove"* at the lower surface, wherein the *"intersection of the generally hook-shaped groove and the outer peripheral face defines an edge"*.

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Applicant admits in the specification (paragraphs [0004] and [0005]) that prior art piston rings (commonly referred to as "Napier" rings) possess hook-shaped grooves (labeled in prior art figures 1 and 2 as numeral "14"). The hook-shaped groove, as is known in the art, enhances the sealing properties of the piston ring. Such a hook-shaped groove: 1) forms a sharp "wiper" edge at the intersection with a tapered outer peripheral face so as to enable a smooth, thin, and even layer of oil between the piston and cylinder wall, and 2) acts to constructively "reverse" the flow of oil, therefore increasing the efficiency of the seal.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the lower surface of the piston ring taught by Norwood, to comprise *a generally hook-shaped groove* defining an edge at an intersection with a tapered outer peripheral face as suggested by Applicant and the old and well-known, in order to increase the efficiency of the seal, provide a means for oil flow reversal, and to help channel oil back along the cylinder wall.

Response to Arguments/Remarks

[7] Claim(s) 1-5, 11, and 15 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Gosling US-2,340,466.

Applicant's arguments/remarks with regard to this reference have been fully considered, but are not persuasive.

Applicant has amended the foregoing claim(s) such that the Gosling reference still anticipates the limitations disclosed therein, when the claims are given their broadest reasonable interpretation.

In lines 18-20 of paragraph [0005], Applicant suggests that "twisting contact" is inherent

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to piston rings, due to the forces encountered during combustion. Therefore the limitation added to independent claims 1 and 11: "having a positive twist" fails to further define over the prior art in a patentable sense.

Moreover, the amendment to the preamble of claims 1 and 11 stating that the piston ring is "generally rigid" fails to define over Gosling. The examiner takes the position that Gosling's piston ring must be rigid enough to serve its purpose as a seal. In its broadest reasonable sense, the term "generally rigid" covers the spectrum of "generally deficient in flexibility" as defined by Meriam-Webster's 10th ed. Dictionary. The term "generally" indicates that something less than exact is required for anticipation. Therefore, this limitation does not overcome the anticipatory Gosling reference.

Additionally, independent claims 1 and 11 merely state an intended use or purpose for the ring, and fail to structurally depart the present device from anticipation by Gosling. Note that it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951). In the instant case, the claims are primarily directed to the structure of a piston ring. Further, claim preamble language may not be treated as a limitation where it merely states an intended use of the system and is unnecessary to define the invention, the U.S. Court of Appeals for the Federal Circuit ruled May 8 (*Catalina Marketing Int'l Inc. v. Coolsavings. com Inc.*, Fed. Cir., No. 01-1324, 5/8/02). Therefore, the added limitation "for use with an internal combustion engine" has not been deemed necessary to define the invention from the prior art.

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The examiner notes that Gosling fails to teach the limitation found in claim 8. However, the term "projection" as it currently stands in claims 1 and 11, does not patentably define over Gosling.

As for Applicant's argument that Gosling fails to teach a hook-shaped groove on a bottom surface, the Examiner would like to direct Applicant's attention to the above annotated drawing. The words "upper" and "lower" are relative limitations, and change with orientation.

In response to Applicant's argument that "Gosling does not disclose combustion gases", Examiner would like to point out that the language "for use with" preceding the phrases "an internal combustion engine" (claim 1) and "a combustion chamber" (claim 11), makes combustion applications optional. Consequently, the functional language: "said projection reducing exposure of said outer peripheral face to the combustion gasses", has not been given substantial patentable weight, because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a "means" for performing the specified function, as set forth in 35 U.S.C. §112 sixth paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.C. 172; 388 O.G. 279.

In response to Applicant's argument that "Gosling does not disclose the hook-shaped groove as claims 1 and 11 recites", the Examiner respectfully disagrees. The ring taught by Gosling could be inserted two different ways (inverted) as a matter of intended use. The argument that "the lower surface is not on the combustion side of the ring" is not persuasive, because as mentioned above, a combustion chamber is not positively claimed.

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[8] Claims 1-5, 8-12, 14, and 15 were previously rejected under 35 U.S.C. 103(a) as being unpatentable over Norwood US-RE14,969 in view of Applicant's own admission of prior art, and NPL www.Jepistons.com (JE Pro Seal Piston Rings Catalogue).

Applicant correctly stated that the reference does not qualify as prior art. Accordingly, this reference is withdrawn as being merely supplemental background evidence of what is already well-known in the art.

In response to Applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for placing a hook-shaped groove on the lower surface of the secondary ring taught by Norwood, would be to produce a better seal by deflecting and reversing oil flow.

In response to Applicant's argument that "Norwood does not include a generally hook-shaped groove", the Examiner would like to remind Applicant that the rejection at hand is a rejection of obviousness under 35 U.S.C. 103(a) and not one of anticipation under 35 U.S.C. 102(b). Examiner concedes that Norwood fails to teach a hook-shaped groove, and that is why Applicant's admission of prior art is used to establish prima facie obviousness.

The fact that Applicant has recognized another advantage, which would flow naturally from following the suggestion of the prior art, cannot be the basis for patentability when the

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differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In the instant case, it is well-known that hook shape grooves found on piston rings provide a better seal by reversing the flow of oil. Therefore, it would be advantageous and within the skill of a worker having ordinary skill to place such a groove on Norwood's ring which already has a rectangular projection, so as to improve the sealing characteristics. The fact that Applicant's invention modifies a prior art ring having a hook-shaped groove by adding a projection for helping sealing is irrelevant, since the structural limitations are coextensive in scope.

It is not required that the prior art disclose or suggest the properties newly-discovered by an applicant in order for there to be a prima facie case of obviousness. See *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897, 1905 (Fed. Cir. 1990). Moreover, as long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. See *In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Kronig*, 539 F.2d 1300, 190 USPQ 425 (CCPA 1976) and *In re Wilder*, 429 F.2d 447, 166 USPQ 545 (CCPA 1970). The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F. 2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In this regard, a conclusion of obviousness may be based on common knowledge and common sense of the person of ordinary skill in the art

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without any specific hint or suggestion in a particular reference. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

Conclusion

[9] THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

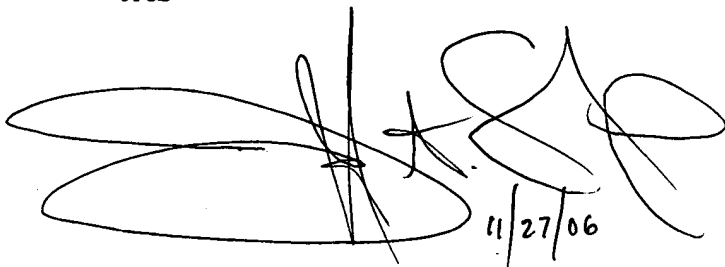
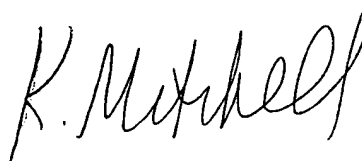
[10] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS

A handwritten signature, possibly "JAS", is written over a large, loopy signature. Below the signature, the date "11/27/06" is written.A handwritten signature in cursive script that reads "K. Mitchell".

Katherine Mitchell
Primary Examiner